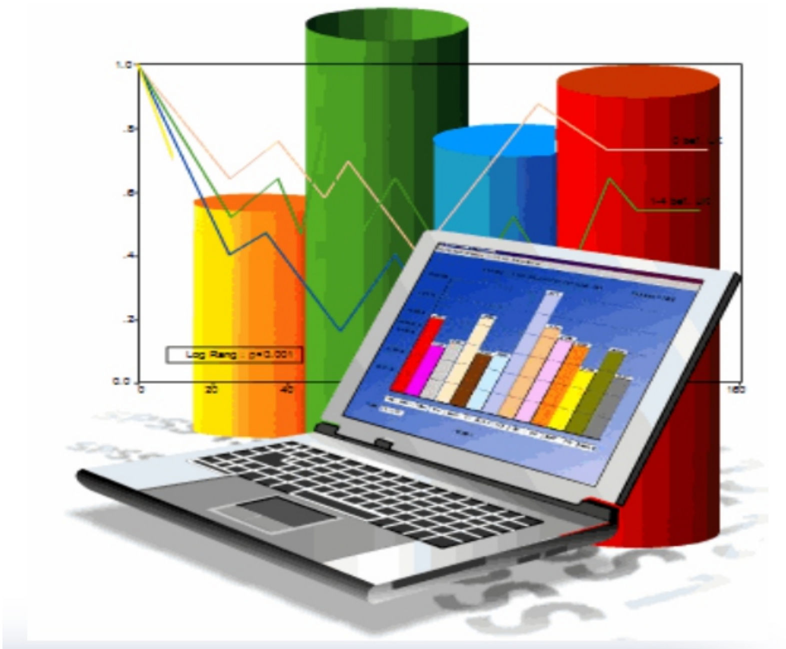
DATA MANAGEMENT, ANALYSIS AND GRAPHICS USING SPSS

INTRODUCTION

SPSS (Statistical Package for Social Scientists) is a comprehensive statistical and data management package for analysts and researchers. Its statistical capabilities alone range from simple percentages to complex analyses of variance, multiple regressions, and general linear models as well as to generate tabulated reports, charts and plots of distributions and trends. SPSS makes statistical analysis more accessible for the beginner and more convenient for the experienced user. The Data Editor offers a simple and efficient spreadsheet-like facility for entering data and browsing the working data file. Most tasks can be accomplished simply by pointing and clicking the mouse.

DURATION

5 days



MODULE 1 / DAY 1

Introduction to SPSS

- What is SPSS?
- Opening SPSS
- Layout of SPSS
- Exiting SPSS
- Exercises
- Brief description and history of SPSS

Overview of SPSS

- The Title Bar
- The Menu Bar
- The (Power) Tool Bar
- The Data Editor (Data View and Variable view)
- The Status Bar
- Syntax Window

Entering Data

- The Logic of Data Files

DATA MANAGEMENT, ANALYSIS AND GRAPHICS USING SPSS

- Entering Data
- Inserting a Variable
- Inserting a Case
- Merging Files (1:1, 1:m, m:1, m:m)

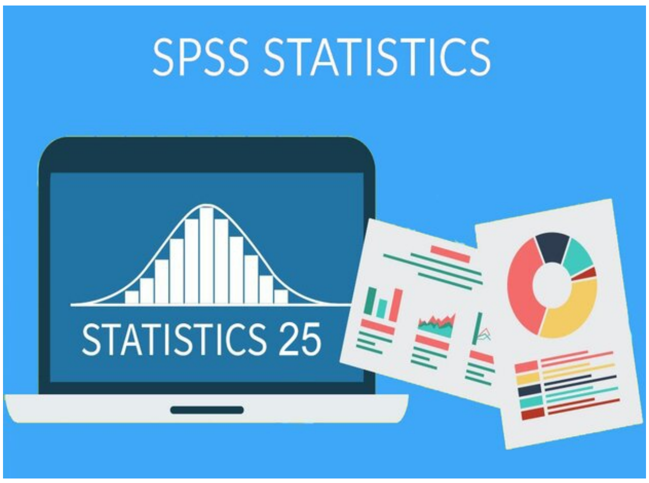
Data Management and Cleaning

- Working with different data sources
- Renaming variables
- Labeling variables
- Labeling values
- Categorizing continuous variables. (e.g. age to age groups)
- Converting string to numeric, byte to integer, float to integer, etc.
- Converting string to date
- Outliers, inconsistencies, and missing values
- Appending

MODULE II / DAY 2

Graphing Data

- Frequency Distributions
- Histograms
- Stem-and-Leaf Plot
- Boxplots
- Bar Graphs
- Line Graphs
- Scatterplots
- Pie Charts
- Chart Templates
- Exercises



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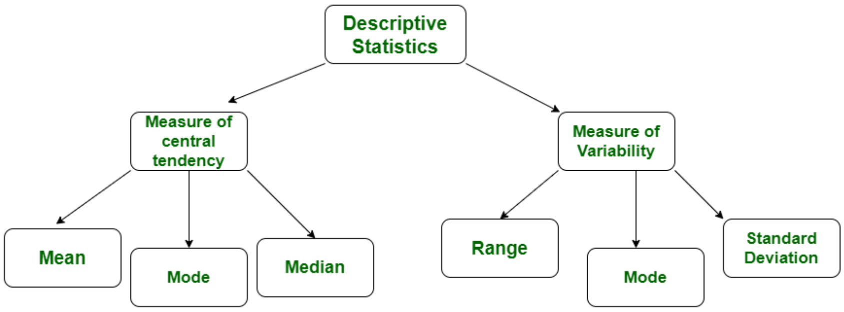
MODULE III / DAY 3

Descriptive Statistics: Measures of Variability and Central Tendency

- Descriptive Statistics
- Frequencies
- Crosstabs
- Exercise



Correlation

- Correlation
- Subgroup Correlations
- Scatterplots of Data by Subgroups
- Overlay Scatterplots
- Exercises

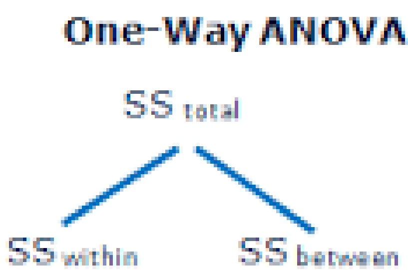
MODULE IV / DAY 4

Comparing Means Using t-tests

- One Sample t-tests
- Paired Sample t-tests
- Independent Samples t-tests
- Exercises

Comparing Means Using One-Way ANOVA

- One-Way Anova
- General Linear Model to Calculate One-Way ANOVAs
- Exercises



Comparing Means Using Factorial ANOVA

- Factorial ANOVA Using GLM Univariate
- Simple Effects
- Exercises

Comparing Means Using Repeated Measures ANOVA

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Comparing Means Using Repeated Measures ANOVA

- Using GLM Repeated Measures to Calculate Repeated Measures ANOVAs
- Multiple Comparisons
- Exercises

Chi-Square

- Goodness of Fit Chi Square All Categories Equal
- Goodness of Fit Chi Square Categories Unequal
- Chi Square for Contingency Tables
- Exercises

	One Way ANOVA	Factorial ANOVA	Two Way ANOVA
Basic Description	Identifies differences between the means of 3+ Independent (unrelated) groups	Compares mean differences between groups split on two or more independent variables	Special Case of Factorial ANOVA with 2 factors
Independent Variables (Factors)	1	2 or more (although 3/4 is usually the max due to complexity of interpreting results and higher probability of Type I errors)	2 IVs: Factor A (2 or more levels) crossed with Factor B (2 or more levels)
What is being compared in the test?	Means of three or more IV's groups on a dependent variable (although 2 groups is possible, 3 or more groups is the norm).	Effects of multiple groups of multiple IVs on a dependent variable, and on each other.	Effects of multiple groups of two IVs on a dependent variable, and on each other.
Assumptions	Continuous dependent variable Normality Sample independence Homogeneity of Variance	Continuous dependent variable Normality Sample independence Homogeneity of Variance Categorical independent variables	Continuous dependent variable Normality Sample independence Homogeneity of Variance Categorical independent variables

MODULE V / DAY 5

Nonparametric Statistics

- Mann-Whitney Test
- Wilcoxon's Matched Pairs Signed-Ranks Test
- Kruskal-Wallis One-Way ANOVA
- Friedman's Rank Test for k Related Samples
- Exercises

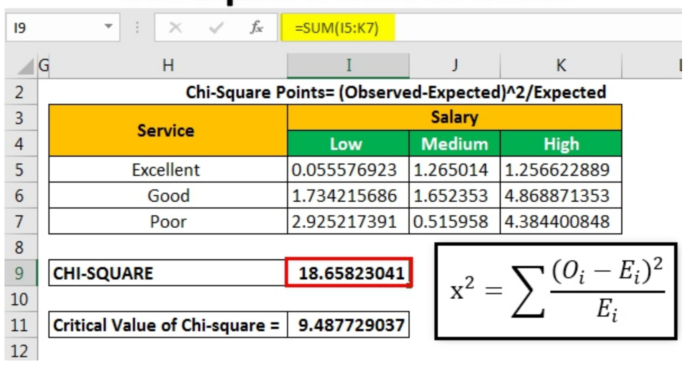
Regression and Multiple Regression

- Regression
- Multiple Regression
- Exercises

Quantitative Report Writing

- Quantitative report format
- Reporting quantitative research
- Reporting content
- Interpretation

Chi Square Test in Excel


I9 =SUM(I5:K7)

Chi-Square Points= (Observed-Expected)^2/Expected

Service	Salary		
	Low	Medium	High
Excellent	0.055576923	1.265014	1.256622889
Good	1.734215686	1.652353	4.868871353
Poor	2.925217391	0.515958	4.384400848

CHI-SQUARE	18.65823041
Critical Value of Chi-square =	9.487729037

$$x^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$